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The Forest For the Trees

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The Forest For the Trees

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Abstract

The Forest for the Trees

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In the Southern Mexican State of Chiapas, plans to implement an environmental policy known as REDD+ could provide sustainable development opportunities to indigenous and forest dwelling communities by compensating them for preventing deforestation. At the same time, REDD+ (which stands for Reducing Emissions from Deforestation and Degradation through conservation, sustainable management of forests, and enhancement of forest carbon stocks in developing countries) hopes to provide a market-based solution to combat global climate change. But detractors of REDD+, including indigenous groups like the Zapatistas argue that the policy is in conflict with indigenous peoples' rights of self determination and pulls communities into capitalist social relations. In a world that increasingly needs solutions to combat global climate change, is REDD+ a saving grace, or is it doomed to failure?

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Atop an abandoned forestry station claimed by years of wild regrowth in Mexico's Lacandon Jungle, Ezekiel Ramírez surveys the landscape. Through a break in the jungle's canopy, Ramírez points out cornfields across the river, swaying in the breeze. Further in the distance, cattle graze on the pastoral countryside.

"This all used to be jungle," Ramírez, 59, says in Spanish.

Illustration 1. Ezekiel Ramírez climbs the abandoned structure of the Ixcan Forestry Station, a former ecological outpost that employed local community members and educated visitors about deforestation in the Lacandon Jungle in Chiapas, Mexico. Tropical rainforest deforestation continues to be one of the leading causes of global carbon emissions, and is a major driver of climate change.

In the state of Chiapas just half a kilometer from Mexico's border with Guatemala, the steel frame on which Ramírez is standing once belonged to the Ixcan Forestry Station, a renowned research facility abandoned after sustaining wind damage in a 2006 storm. The Ixcan station educated tourists, many of whom burned jet fuel to reach this remote location to learn about deforestation in the most biologically diverse rainforest in North America.

Figure 1: Originally 6,000 square miles of untouched wilderness stretching from Southern Mexico to Guatemala, only about 10 percent of the Lacandon virgin forest remains. Courtesy of Google Maps.

Today, the Lacandon Jungle has dwindled to less than a third of its original size.[1] And although Ixcan no longer champions a model of eco-tourism, another scheme negotiated by organizations like the United Nations Environmental Program and the World Bank since 2005, promises to stop deforestation in the region while giving locals a sustainable income.

[1] Rogelio Velázquez and Alejandro Wong, "Nos queda apenas 28% de la Selva Lacandona; vaya diciéndole adiós a esa gran reserva de México," VICE News, via SinEmbargo.mx, October 16, 2016, http://www.sinembargo.mx/16-10-2016/3103500.

Known as REDD+, the program would monitor carbon dioxide stored in rainforests and compensate local communities for preserving that CO2. Through the sale of carbon offset credits to oil companies and governments, REDD+ promises to pay those communities to protect forested areas endangered by commercial agriculture and livestock ranching.

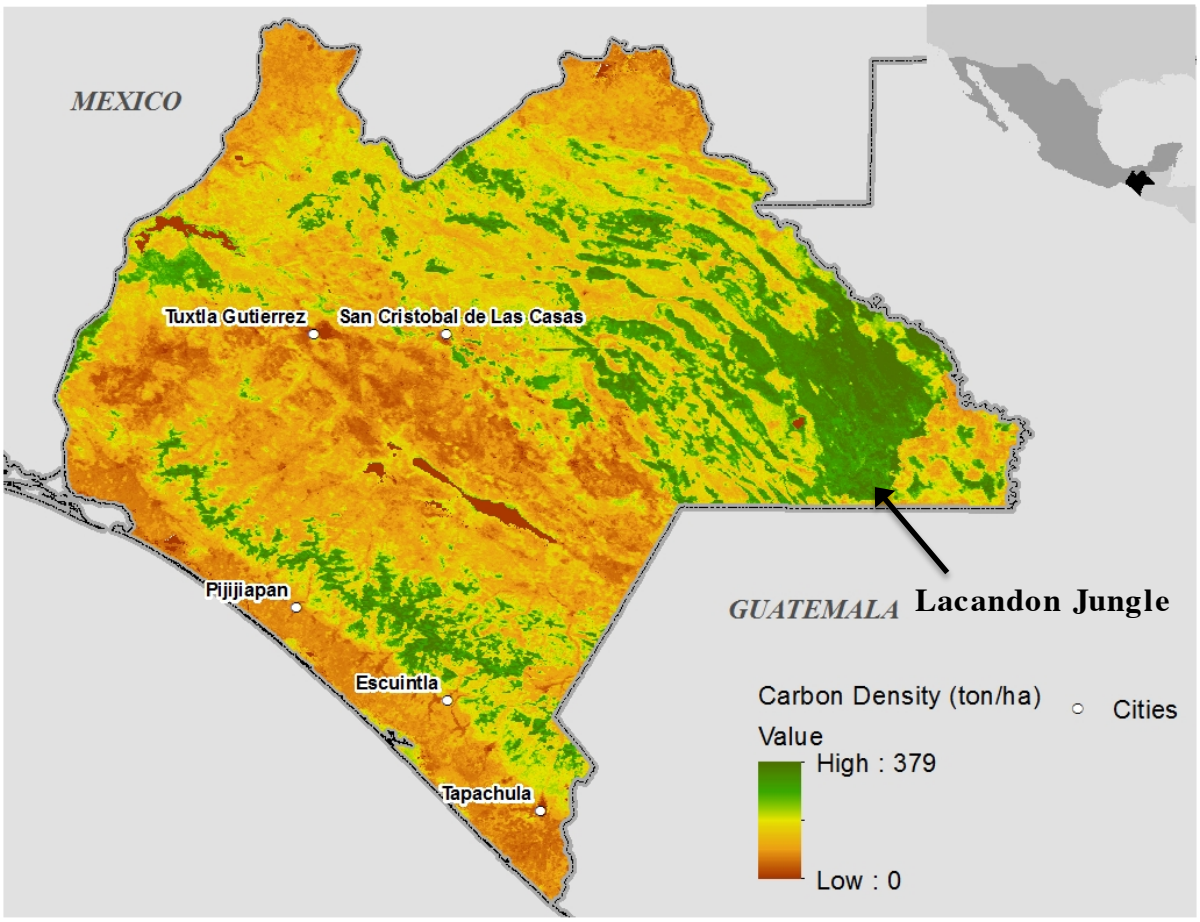

Figure 2: The map above shows the average carbon density stored in Chiapas' forested areas. The state is considered a prime place for REDD+ because nearly 60 percent of the state's total emissions come from deforestation. An additional 19 percent — or 5.4 megatons of carbon dioxide— came from the state's agricultural sector in 2011. Courtesy of The California Air Resources Board

In other words, REDD — which stands for "Reducing Emissions from Deforestation and Forest Degradation" — seeks to make forests more valuable standing than cut down.[2] The '+' denotes that it plans to do this through "conservation, sustainable management of forests, and enhancement of forest carbon stocks in developing countries."

And while it's only been has only been implemented in a few pilot projects worldwide, it means that people like Ramírez could collect an annual sum just for preserving the jungle near their homes.

But the program has garnered serious controversy.

That's because REDD+ and other payment for environmental services programs commodify nature in a way that could force many indigenous communities to participate in the international carbon market — a notion that proponents of indigenous rights see as deeply problematic.[3]

[2] "Frequently Asked Questions and Answers — REDD+ and the UN-REDD Programme" (UN-REDD Programm, June 2010), http://www.unredd.net/index.php?view=download&alias=6207-un-redd-faqs-and-answers-june-2010-1-6207&category_slug=additional-resources-1312&option=com_docman&Itemid=134.
[3] "Payments for Ecosystem Services," UN Development Programme, 2017, http://www.undp.org/content/dam/sdfinance/doc/Payments%20for%20Ecosystem%20Services%20_%20UNDP.pdf?download.

Illustration 2. Ezekiel Ramirez, 59, pilots a boat up the Lacantún River near the Mexico-Guatemala border. Fifty-one percent of the state's residents live in rural areas in Chiapas. The poorest state in Mexico, agriculture is one of the few ways to make a living. But the average size for a plot is among the smallest in the country, and forty-one percent of Chiapas' farmers are smallholders with zero to five hectares, according to the World Bank.

REDD+ is "fomenting violence between communities and within communities," Ana Valadez, a researcher with the Center for Studies for Change in the Rural Mexico said**.**

"It's one more element in the deterioration of community relations, and its in violation of the rights of communities' self-determination."

Yet experts see REDD+ as another solution in the tool kit against greenhouse gas emissions caused by deforestation.

Although global deforestation rates are slowing, the planet lost 6.2 million hectares of forest — equivalent to about 6 million football fields — per year from 2000 to 2010, according to the UN Forest and Agriculture Association.[4]

Largely driven by agricultural development, cattle ranching and encroaching human settlements, such deforestation is wiping out the globe's biggest carbon sinks. Rainforest loss is responsible for an estimated 15 percent of the Earth's yearly greenhouse gas emissions, according to the UN FAO. In Chiapas, a whopping 58 percent of the state's total emissions are caused by deforestation due to land use change.[5]

"REDD+ is just one of many different components in a integrated landscape management process," said Jesse Festa, Marketing Director for The Nature Conservancy — an environmental NGO that is helping implement REDD+ programs in Chiapas.

But transforming forests into quantifiable, measurable commodities that can be monitored by environmental NGOs or government agencies could compel more than 4000 smallholding agricultural communities in Chiapas to engage with nature in a fundamentally different way — one that is dictated by the market and is therefore governable by the state.[6]

And while REDD+ promises to save rainforests while providing people with sustainable livelihoods for agrarian communities, it also forces us to examine the ways in which we value our world. Instead of working for wages, could people instead be compensated for protecting the environment? Rather than formulating market-based solutions to remedy climate change, should a monetary value be assigned to nature at all?

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[4] "State of the World's Forests" (Rome: Food and Agriculture Organization of the United Nations, 2016), http://www.fao.org/3/a-i5588e.pdf.
[5] Sylvia Ramos Hernandez, "Inventario Estatal de Gases de Efecto Invernadero Del Estado De Chiapas." (Programa de Acción Ante el Cambio Climático del Estado de Chiapas, n.d.), http://www.semahn.chiapas.gob.mx/portal/descargas/paccch/inventario_estatal_gei_chiapas.pdf.
[6] Michael L. Cepek, "Foucault in the Forest: Questioning Environmentality in Amazonia," *American Ethnologist* 38, no. 3 (August 1, 2011): 501–15, https://doi.org/10.1111/j.1548-1425.2011.01319.x.

For many indigenous communities, nature is “Mother Earth, part of a cosmology, or part of a story,” said Julia Dehm, who researches environmental governance, carbon markets, and human rights at Latrobe University Law School in Melbourne, Australia.

“With REDD+, suddenly you’re teaching people to say ‘I engage with this tree as a potential source of income,’ and that’s incredibly stark.”

Chapter II: "Ac-counting" on Carbon Markets

A world away from Chiapas, smokestacks along Interstate 10 throw billows of white smoke against a blue Texas sky. It's a common sight near Houston, which is home to more than 4,600 energy companies, as well as ten oil refineries that collectively produce over 2.3 million barrels of oil per day.[7]

But in the shadow of those smokestacks, homes remain gutted and abandoned in Houston's interior. The city's northeastern neighborhoods were hit especially hard by flooding caused by Hurricane Harvey in Aug. 2017.[8]

Nine months later, some Houstonians are still trying to make sense of what happened, and who should be held responsible.

"Carbon markets are a bunch of smoke and mirrors," said Brian Parras, the Sierra Club's Beyond Dirty Fuels Organizer in Houston.

For Parras, a carbon offset program like REDD+ is a type of "green washing" that makes polluters look conscientious while failing to address the environmental destruction happening at home.

"Companies in Houston are spending money in far away places separate from where the destruction is taking place," Parras said.

When governments and businesses buy carbon credits, they are also buying a license to continue polluting the atmosphere with carbon dioxide. In theory, purchasing credits (the price

[7] "Energy Industry Overview" (Greater Houston Partnership, April 14, 2018), http://www.houston.org/newgen/16_Industry_NEC/16B%20W010%20Energy%20Industry%20Overview.pdf.
[8] Sarah Almukhtar, "Mapping the Devastation of Harvey in Houston," *The New York Times*, August 28, 2017, sec. U.S., https://www.nytimes.com/interactive/2017/08/28/us/houston-maps-hurricane-harvey.html, https://www.nytimes.com/interactive/2017/08/28/us/houston-maps-hurricane-harvey.html.

fluctuates around $15 per ton of CO2) offsets those emissions, and placing caps on those emissions should decrease global greenhouse gas emissions over time.[9]

Carbon markets work on the assumption that if an energy company in Houston pays to reduce carbon in Chiapas, it's as good as a reduction at home since all emissions go into the atmosphere anyway.

But carbon offsets don't actually *stop* pollution — they only shift the burden of reducing emissions someplace else. [10]

"It's a numbers game, and it's 'fuzzy math,' Parras said, quoting President George W. Bush — a Texas oilman who also tried to curb the country's greenhouse gas emissions.[11]

British Petroleum's Target Neutral initiative, for instance has offset "3 million tonnes of carbon dioxide emissions since 2006," according to the program's communications manager Dan Davies.[12]

On average, that's around 250,000 tonnes per year — paltry compared to the 46.1 million tonnes of CO2 the company reported emitting in 2016 alone.[13]

At the same time, factories that continue polluting while offsetting their emissions still cause environmental damage home, which disproportionately affects low income and marginalized communities living near contaminated areas.

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[9] "California Carbon Dashboard," California Carbon Dashboard, 2018, calcarbondash.org.
[10] Tamra Gillbertson, "Carbon Pricing: A Critical Perspective for Community Resistence" (Indigenous Environmnetal Network & Climate Justice Alliance, October 2017), http://www.ienearth.org/wp-content/uploads/2017/11/Carbon-Pricing-A-Critical-Perspective-for-Community-Resistance-Online-Version.pdf.
[11] Stuart Gaffin, "Fuzzy Math on Greenhouse Gas," *The New York Times*, February 19, 2002, sec. Opinion, https://www.nytimes.com/2002/02/19/opinion/l-fuzzy-math-on-greenhouse-gas-698962.html.
[12] "Forest Protection, ZambiaBP Target Neutral," *BP Target Neutral* (blog), 2018, https://www.bptargetneutral.com/us/how-we-work/our-projects/forest-protection-zambia/.
[13] "BP Sustainability Report" (British Petroleum, April 2017), https://www.bp.com/content/dam/bp/en/corporate/pdf/sustainability-report/group-reports/bp-sustainability-report-2016.pdf.

Houston is home to over 400 toxic sites, including superfund sites, refineries, chemical plants and wastewater treatment facilities, according to the Sierra Club.[14] Some of those leaked toxins during Harvey's flooding, and one even exploded.[15]

"We shouldn't just be hyper-focused on carbon emissions, but also other real threats to communities that make more sense, are more tangible, and more immediate," Parras said.

Moreover, when offsets are happening so far away, it's difficult to build accountability and measure their actual impact.

That's where environmental NGOs like The Nature Conservancy come in. Partially funded by USAID, the organization works with local stakeholders and governments like Mexico's to implement carbon monitoring and payment schemes.

"We're identifying the locations, and the disparate reasons for deforestation in Mexico, and then looking for resources to implement conservation programs," Carolina Izaguirre, a finance specialist for The Nature Conservancy in Mexico said.

Yet putting REDD+ into practice will not be easy, and the lack of coordination between different sectors and government agencies poses a real problem, according to Izaguirre.

"The single biggest problem REDD+ faces in Mexico is the lack of institutional capacity," said Manolo Veregaras, who is helping implement The Nature Conservancy's REDD+ monitoring project in Mexico.

Indeed, there are countless issues with REDD+ when it comes to implementation, and many more proposed solutions to combat the program's shortcomings.

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[14] "Hurricane Harvey: Toxic Sites," Sierra Club, August 30, 2017, https://www.sierraclub.org/environmental-justice/hurricane-harvey-toxic-sites.

[15] Darryl Fears and Brady Dennis, "Houston's Polluted Superfund Sites Threaten to Contaminate Floodwaters," *Washington Post*, August 29, 2017, sec. Energy and Environment, https://www.washingtonpost.com/news/energy-environment/wp/2017/08/29/houstons-flood-threatens-to-turn-polluted-superfund-sites-into-a-toxic-gumbo/. *See also:* Jim Malewitz and Emma Platoff, "Explosions Reported at Harvey-Flooded Chemical Plant in Crosby," The Texas Tribune, August 31, 2017, https://www.texastribune.org/2017/08/31/harvey-flooded-chemical-plant-crosby-reportedly-explodes/.

Jurisdictional approaches, for example, hope to enact REDD+ through international, state, and local legislation to deforestation from simply spreading to unprotected forests. REDD+ programs also need to address challenges like forest fire prevention and illegal logging deterrence, and guarantee that payments aren't handed out for already protected forests.

That will be hard in a country that already suffers from weak institutions and spotty rule of law, and in Mexico corruption could easily undermine the goals the program sets out to accomplish. In a country where over 80% of the land is communally owned, increasing the value of standing forests could incentivize that corruption, and by re-centralizing control over communal land, corrupt officials could collect REDD+ payments or profit off the carbon exchange market.[16]

Despite the implementation issues, REDD+ and carbon accounting mechanisms are generally considered "low hanging fruit," when it comes to solving the global climate crisis. That's because the world needs more than just reducing emissions through market-based solutions to climate change. We need to shift our entire economy away from fossil fuel dependence.

"We have to heal, fix, clean, repair. All of those things are part of the recovery," Parras said. In Houston, "it's not just going back to how things were before the storm. The storm began 100 years ago when the fossil fuel industry first developed."

One way to move forward is to implement community-based processes of production that circumvent the need for global trade, according to Parras. Things like sustainable food systems and self-sufficient communities could help.

[16] Chris Sandbrook et al., "Carbon, Forests, and the REDD Paradox," *Fauna & Flora International* 44, no. 3 (n.d.): 330–34, https://doi.org/10.1017/S0030605310000475.

And one community in Southern Mexico, often misunderstood as black-clad, gun-toting anarchists, may have some answers for the rest of us.

Chapter III: *Tierra y Libertad:* Land and Liberty in the Lacandon Jungle

Shrouded in the Lacandon Jungle's perpetual morning fog, the sign posted above the guardhouse dictates that all visitors must present a passport in order to enter the Rebel Zapatista Autonomous Municipality of Oventic. The guard, his nose and mouth covered by a red bandanna, keeps a list of names, passport numbers and nationalities on a wooden clipboard.

Although the community welcomes visitors, longstanding tensions with the Mexican government give the Zapatistas an understandable skepticism when it comes to outsiders — especially Mexican citizens who could be undercover government officials, police or military personnel.

"Wait here," the guard says. Collecting our passports, he disappears down the hill and into the community enveloped in mist.

Oventic is one of five self-governing communities formed after the 1994 Zapatista uprising, in which a battalion of armed rebels marched out of the Lacandon Jungle and occupied Chiapas' urban centers in protest of the North American Free Trade Agreement.

Though no longer brandishing AK-47s, the Zapatistas are still a political force in Chiapas, and a major voice of opposition against REDD+.[17]

[17] Chris Lang, "Statement from Chiapas, Mexico Opposing REDD Project | REDD-Monitor," *REDD-Monitor* (blog), September 7, 2011, http://www.redd-monitor.org/2011/09/07/statement-from-chiapas-mexico-redd-project-is-a-climate-mask-to-cover-up-the-dispossession-of-the-biodiversity-of-the-peoples/.

Illustration 3. At Oventic, the murals that adorn buildings are laden with feminist and indigenous imagery. Some even express solidarity with movements like Black Lives Matter and the Dakota Access Pipeline protests. The Zapatistas began protesting REDD+ at the 2010 UN Global Climate Change Conference in Cancun, Mexico. A few years later, opposition to REDD+ surged again after a local governor attempted a local REDD+ program in Chiapas. That plan was quickly abandoned after the politician was accused of funneling that money to various environmental clients.

That's because at the core of the Zapatista's message are claims about sovereignty over their land, and their rights as indigenous people to govern themselves. Those beliefs factored strongly into the groups' resistance against international policies like NAFTA and REDD+.

When Mexican lawmakers signed NAFTA, they also amended Article 27 of the country's constitution, which redistributed land after the 1917 revolution to Mexico's

agrarian peasantry through a system of *ejidos,* or small, communally owned landholdings.[18]

But NAFTA threatened to erase that proletarian history and put Mexico's public lands back on the market for international private investment. So on Jan. 1, 1994 — the day NAFTA went into effect — the Zapatistas marched out of the jungle and into San Cristobal, the state's historical capital. Almost overnight, the Zapatista's iconic pipe-smoking spokesman Subcomandante Marcos became an international celebrity, thanks to the early internet.

Illustration 4: Indigenous women sell clothing in the Mercado Viejo, or old market, in San Cristobal de las Casas, Chiapas. In all, there are 12 indigenous languages officially recognized in Chiapas, although at least 29 are spoken throughout the region. REDD+ could potentially affect 1.7 million indigenous people living in over 4,000 agrarian communities across Mexico, according to CECCAM.

[18] James J. Kelly, "Article 27 and Mexican Land Reform: The Legacy of Zapata's Dream," *Notre Dame Law School*, Scholarly Works, Paper 668 (1994), http://scholarship.law.nd.edu/law_faculty_scholarship/668.

"The Zapatistas put up real limits on the advances of agenda of the global market," Ana Valadez said.[19]

The Zapatistas, who have called REDD+ an "international land grab," and "CO_2lonialism," believe the program forces indigenous communities into shouldering the burden for the global climate problem — one they had no hand in creating. Asking indigenous people to preserve forested areas inhibits their right to develop on their own terms, they argue.

For the Zapatistas, REDD+ is a coercive form of conservation that will force their people into the international exchange for carbon credits, dragging indigenous communities into the unequal and exploitative global economy.[20]

Not only do carbon markets extend capitalism's reach into the realm of intangible goods like CO2 in the atmosphere, accounting programs like REDD+ can be seen as one way for international and state governments to direct how indigenous populations interact with the natural world.[21]

Zapatismo rejects capitalism as the sole system for economic relations and attempts to define the world through its own community-based processes of production

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[19] Lang, "Statement from Chiapas, Mexico Opposing REDD Project | REDD-Monitor." *See also:* "No to CO2lonialism! Indegenous People's Guide: False Solutions to Climate Change" (Indigenous Environmental Network, 2009), http://www.uky.edu/~tmute2/nature-society/password-protect/nature-society-pdfs/Indigenous- Peoples-Guide-Env.pdf.

[20] Tom Griffiths, "Seeing 'REDD'?" (Forest People's Programme, May 2009), https://unfccc.int/resource/docs/2012/smsn/ngo/242.pdf.

[21] Peter Miller and Nikolas Rose, "Governing Economic Life," *Economy and Society* 19, no. 1 (1990): 1–31, https://doi.org/10.1080/03085149000000001.

and self-determination.[22] For that reason, REDD+ was simply incompatible with their indigenous way of life.

"What the Zapatistas demonstrated is that they were opening up a parenthesis, a space for a dialogue between indigenous communities and the rest of the world," Valadez said.

But in today's global climate conversation, indigenous peoples are often essentialized as "guardians of the environment," a narrative that fails to recognize the diversity among indigenous communities, many of which have varying levels of interest in engaging with the rest of the world.[23]

But the Zapatista Army of National Liberation, formed out of a disagreement with environmentalists over development issues in the Lacandon Jungle. As indigenous groups began clearing more jungle to establish settlements, conservationists in the 1970s pressured the Mexican government to protect the rainforest from clear cutting and agriculture.

In response, the Mexican government created the Montes Azules Biosphere Reserve in 1978 — a 330,000 hectare protected natural area that covered around one-fifth of the area's original rainforest. But with the creation of the biosphere reserve, over

[22] "First Declaration of the Lacandona Jungle" (School for Chiapas, December 1993), http://schoolsforchiapas.org/wp-content/uploads/2014/03/1st-Declaration-of-the-Lacandona-Jungle.pdf.
[23] David Hill, "Indigenous Peoples Are the Best Guardians of World's Biodiversity," the Guardian, August 9, 2017, http://www.theguardian.com/environment/andes-to-the-amazon/2017/aug/09/indigenous-peoples-are-the-best-guardians-of-the-worlds-biodiversity.

20,000 people were forcibly removed from their homes, a history that has fueled lingering anti-government sentiments, and an ardent sense of self-determination.[24]

Today, that sentiment is integral to Chiapas' culture, where many communities display banners painted black with a red Zapatista star. Billboards along rural highways proffer support for the Zapatista-backed Mexican Presidential candidate, María de Jesús Patricio Martínez, and many towns even posted signs denying outside businesses access to their communities.[25]

"We have to think about our own communities because we've been silenced for so long," 18-year-old Zapatista Facundo Teratol says as gives visitors a tour of Oventic. He says this in Spanish, which isn't his first language.

Teratol, who was born well after the 1994 Rebellion was raised in Oventic and grew up speaking Tsotsil — one of 12 recognized Mayan languages spoken in Chiapas.[26]

Oventic, Teratol explains, supports around 2,000 people who live in the surrounding countryside, and boasts a health center, a women's resources center, and a library.

"I don't have many reasons to leave," Teratol says.

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[24] "Evictions of Indigenous Communities Fuel Displacement in Chiapas" (Switzerland: Internal Displacement Monitoring Centre, January 22, 2008), http://www.internal-displacement.org/assets/library/Americas/Mexico/pdf/Mexico-January-2008-2.pdf.

[25] "Mexico Has Its First Indigenous Woman Candidate for President," Public Radio International, accessed December 13, 2017, https://www.pri.org/stories/2017-06-02/mexico-has-its-first-indigenous-woman-candidate-president.

[26] Jordan Bazak, "The Last of the Mayans: Preserving Chiapas' Indigenous Languages in the 21st Century," Council on Hemispheric Affairs, October 7, 2013, http://www.coha.org/the-last-of-the-mayans-preserving-chiapas-indigenous-languages-in-the-21st-century/.

Indeed, eight training centers in the surrounding areas are also dedicated to sustainable, self-sufficient agriculture, one of the primary ways the Zapatistas remain autonomous without help of the global food system, or the international economy.

As the young Zapatista escorts us through the flower-adorned gate, four young men stroll past, and without presenting any documents they vanish into the fog.

Chapter IV: Cultivating Alternatives

Swatting at large black flies, Ricardo Chambor's long hair dances around his head as he ducks and dodges the insect scourge buzzing around his face.

Illustration 5: In Campamento Rio Lacanjá's *milpa,* pineapples and squash share space with banana, payapa and corn stalks. The agroecological farming technique encourages greater crop yields, and is a sustainable alternative to commercial monoculture farming.

"I was born in the jungle," Chambor says, finally landing a palm on a large fly that foolishly paused on his arm. He is the proprietor of Campamento Rio Lacanjá, an eco-tourism lodge in the village of Lacanjá on the Eastern edge of the Montes Azules Biosphere reserve, and a jumping off point for the nearby Maya ruins of Bonampak.

"Just like you're comfortable in the city, I'm comfortable out here, in the *selva.*"

Surrounded by cornstalks, papaya and banana trees, Chambor is standing in a clearing about the size of a soccer pitch. Spiky pineapple plants shoot out of the ground, and tangles of beans and squash vines wrap around his feet, almost creeping up his leg.

This is Campamento Rio Lacanja's *milpa,* a traditional agricultural technique used by nearly every indigenous community throughout Chiapas for thousands of years. In a *milpa*, up to two-dozen different crops are simultaneously cultivated such that each plant aids the others in a symbiotic ecosystem.

Illustration 6: A Lacandon Maya girl throws her sweater in the air as she walks to church in the village of Lacanjá. Despite its indigenous roots, there are at least three Presbyterian churches in the tiny village, pointing to the region's colonial influence.

Chambor is also a Lacandon Maya — an indigenous group with a remaining population of less than 1,000 members, according to Mexico's National Institute of Indigenous Languages.[27]

The Lacandon are known for sporting a traditional look: white tunics and long black hair, although today, Chambor opted for a black T-shirt with the sleeves rolled up.

[27] Arulfo Embriz Osorio and Óscar Zamora Alarcón, "Lenguas Indígenas Nacionales En Riesgo de Desaparición" (Mexico, D.F.: Instituto Nacional De Lenguas Indigínas (INALI, 2012), http://site.inali.gob.mx/pdf/libro_lenguas_indigenas_nacionales_en_riesgo_de_desaparicion.pdf.

"Sometimes we grow chili, tobacco, or green tea. There are lots of medicinal plants growing here too," Chambor says.

The *milpa* is an alternative to commercial monoculture farming, which is the single greatest driver of deforestation in the Lacandon Jungle and a major reason REDD+ was envisaged as a solution.

Agriculture for export makes up eight percent of Chiapas' GDP and employs nearly 750,000 people -- or 40 percent of the population, according to Mexico's National Institute for Statistics and Geography, or INEGI.[28] And the explosion of cash crops like oil palm, bananas, jatropha, and sun-grown coffee, all pose significant threat to the shrinking forest.

But the *milpa* is like a "supermarket in your backyard," according to Peter Rosset, Professor of Agroecology at ECOSUR University in Chiapas.

In western parlance, the technique is known as intercropping, and it has major ecological benefits including increased biodiversity, healthier soil and greater crop yields per square foot.[29] That's because crops that work together mutually exclude pests or give each other structural support.

"The diversity of crops helps control pests and helps maintain soil fertility without the need for chemicals. It produces a balanced diet and doesn't require that much labor because the squash and the beans shade out the weeds under the maize," Rosset said.

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[28] The World Bank Grou and CIAT, "Climate Smart Agriculture in Chiapas, Mexico," CSA Country Profiles for Latin America (Washington D.C.: The World Bank Group, 2014), http://sdwebx.worldbank.org/climateportal/doc/agricultureProfiles/CSA-in-Chiapas-Mexico.pdf.
[29] Matt Jenkins, "Maya Gold," The Nature Conservancy, Fall 2017, https://www.nature.org/magazine/archives/maya-gold.xml.

Traditionally, communities used a growing plot for two to three years before letting the jungle regenerate. Plots were only reused every 20 to 30 years, allowing communities to harvest useful resources like food and timber at every stage of the forest's regrowth.[30]

But the growth of commercial farming has pushed traditional subsistence practices like the *milpa* aside, and the Mexican government has often tried policy programs to encourage modern agricultural development.

When the Mexican government encouraged widespread palm oil production in rural Chiapas in 2008 through a program that subsidized palm plantations, it distributed over 4 million oil palm seedlings to local farmers. Although the program banned farmers from cutting existing forest to plant the crops, it also didn't explicitly ban deforestation for other agriculture or ranching. As a result, many farmers planted palm on existing farmland only to clear more jungle for their cattle. When the state subsidies ended and the oil palm market was no longer profitable, many palm plantations were eventually abandoned.[31]

Such policy failures point to a continued need for the *milpa,* Rosset said. Moreover, monoculture crops are more expensive, more susceptible to pests, and prone to volatile price swings.

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[30] Anabel Ford and Ronald Nigh, "The Milpa Cycle and the Making of the Maya Forest Garden," *Belizean Archaeology* 7, no. 2010 (2010): 183–90.

[31] Blair Cameron, "Forests, Farms, and the Future of the Lacandon Jungle: Payments for Environmental Services in Mexico, 2007-2014," Innovation for Successful Societies (Princeton University, 2015), http://www.ccmss.org.mx/wp-content/uploads/2015/10/BC_NORAD_Mexico.pdf.

"Smart campesino families will always have a *milpa* on the side to make sure they actually eat when the bottom falls out of the price of their cash crop, or a buyer never shows up. It happens repeatedly," Rosset said.

Indeed, 46 percent of people in Chiapas are considered food insecure, mirroring a nationwide trend. Approximately 44 percent of Mexico's population, or nearly 50 million people, experience some degree of food insecurity, according to the World Bank.[32]

And it's hard to make a living solely off agriculture. Farmers in Chiapas — like farmers in the Midwest — must often present an agricultural plan in order to secure bank loans from financing institutions. When handing out loans, banks look for projects that use pesticides, chemical fertilizers, and commercial hybrid seeds. The same is true for contract farming, and when companies like Dole or Chiquita set up farming operations in Chiapas, locals must use the company's approved agricultural techniques.

"People are locked into the dominant technological model, even if they're common sense tells them it's a bad idea," Rosset said.

But if REDD+ is to be successful, the program must make protecting the rainforest more economically viable than monoculture farming. In pilot projects elsewhere around the world, that dream has not panned out.[33]

"If your land is only giving you a yield of 80 cents per hectare, switching to REDD+ then becomes a viable option. But if you're switching a palm oil plantation to

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[32] David Magaña-Lemus et al., "Determinants of Household Food Insecurity in Mexico," *Agricultural and Food Economics* 2016, no. 4 (n.d.), https://doi.org/10.1186/s40100-016-0054-9.
[33] Erin O. Sills et al., *REDD+ on the Ground* (Center for International Forestry Research, 2014), https://www.cifor.org/redd-case-book/part-3-synthesis/redd-ground-global-insights-local-contexts/.

REDD+, where you're making $22 per hectare, it isn't as attractive an option," Dehm said.

At Campamento Rio Lacanjá, Chambor's mission is to educate foreign and Mexican tourists on the traditional practices that are slowly being subsumed by modernity.

"We're trying to show people there's another way," Chambor says, as he searches for a ripe papaya to take back to the lodge's kitchen.

Indeed, those old ways may not just help us feed ourselves sustainably, but also cultivate our communities too.

Chapter V: Governing the good life

Back in Ejido Ixcan, the community upriver from the former forestry station, Ricardo Ramírez Marariesgos is swinging shirtless in a hammock. He grins as his grandchildren zoom around the breezeway of their home on plastic scooters, shrieking with excitement.

"I came here looking for a good life," Ramírez says. The 62-year-old is Ezekiel's Ramírez's older brother and a native of Comalapa, a small town on the Guatemalan border about four hours southwest.

As a young man, Ramírez moved to Ejido Ixcan in 1970. Back then, the region was "pure jungle," Ramírez says. So he began clearing land, and planting *milpa* and small plots used to grow cacao, beans and maize.

Today, Ramírez, along with his wife, three daughters and two sons occupy the modest dwelling. Two of Ramírez's other sons are not present — they now work construction jobs outside Louisville, Kentucky and help the family by sending home money.

But the *ejido*, located at the edge of the Montes Azules Biosphere, is also prime candidate for REDD+ payments. But if a program is proposed in Ejido Ixcan, Ramírez is unsure how members of his community might react.

"If there is money, I think many people will want to take it," he says. "Who can blame them?"

In communities where there are few options, REDD+ could be a great opportunity, according to Tim Trench, an anthropologist and forestry researcher at the University of Chapingo in Chiapas.

"Some communities in Southern Mexico could earn as much as twenty to thirty percent of their annual income if a REDD+ program were implemented," Trench said.

Trench's team recently authored a report on REDD+ implementation in Mexico. The study surveyed over 150 communities and found "a renewed enthusiasm," toward payment for environmental services programs in Chiapas.[34]

That could mean an annual payment of 3,000 to 60,000 pesos — about $160 to $3,200. It's a wide gap, but it shows how REDD+ could offer completely different incentives in some areas depending on the size of the protected plot, how much carbon it could be expected to capture, and the likelihood that forest will be cut, according to Trench.

Yet Ramírez says many would sympathize with the Zapatista's — that REDD+ would undermine their communities right to develop.

"We're all Zapatistas here," he said.

But in the *ejido*, Ramírez explains, all large decisions are left up to a vote. And those votes can either bring communities together, or tear them apart.

"Automatically when this kind of policy comes up, I can 100 percent guarantee you that an *ejido* will be split. These kinds of programs just exacerbate and rip open internal divisions within communities," Rosset said.

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[34] Tim Trench et al., "Analyzing Multilevel Governance in Mexico," *Center for International Forestry Research*, Working Paper, no. 236 (n.d.), https://doi.org/10.17528/cifor/006798.

Moreover, an "all-around cynicism," tends to accompany these types of development projects, according to Rosset. Rural communities have seen countless development projects offer change but fail to materialize. And in a country that cut its 2017 budget for environmental protection by 37 percent, politicians may not actually prioritize protecting the environment.[35]

Even if REDD+ does get off the ground, it would face other challenges, like how payments are divvied up in communities, and who decides how to spend them. Studies have shown that men are more likely to prefer cash payments, while women generally favor investing in local development initiatives.[36]

In the end, those implementation issues may doom REDD+ to failure, and as governments ratchet up their commitments to fight climate change, the debate surrounding *if* and *how* REDD+ should work in practice will only continue.

But even though carbon markets and REDD+ are insufficient solutions that don't address the root causes of the global climate problem, does it mean we shouldn't pursue them? Certainly, the policy deserves its well-justified skepticism, but isn't REDD+ just one more tool in the fight against global climate change?

After all, isn't doing *something*, better than doing *nothing?*

While that may be true, it doesn't absolve everyone — our corporations, our governments, and our communities— of doing much, much better. Corporations *should* pay their fair share and take active steps toward remedying the injustice they've caused in

[35] David Ordaz, "Sedatu, Semarnat, Segob y SEP, Las Más Afectadas En El Presupuesto 2017," Aristegui Noticias, September 9, 2016, https://aristeguinoticias.com/0909/mexico/sedatu-semarnat-segob-y-sep-las-mas-afectadas-en-el-presupuesto-2017/.
[36] Christi Hang, "REDD+ Benefits: Men Want Cash, Women ..," CIFOR Forests News, February 22, 2018, https://forestsnews.cifor.org/54754/redd-benefits-men-want-cash-women-want-development?fnl=en.

search of profit. Governments *should* focus their policy-making efforts on substantive, transitional approaches toward a low-carbon economy. And our communities *should* have the final say in protecting the rights of the most marginalized, not to mention the opportunity to seek out alternatives for a low-carbon existence.

Of course, just because we should, doesn't mean we will, and we may need all the help we can get.

Perhaps, then, it's better to question the efficacy of REDD+ rather than its existence. It's clearly an imperfect solution, but what good can it do in the world, and where?

It may be more useful to say "look, REDD+ is forcing capitalist social relations on a population, but then allow people to make their own normative judgments about whether they agree if that's good or bad," Dehm said.

When it comes to REDD+ and other market-based solutions to climate change, it may be time to see the forest for the trees.

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